

Watson – 18 months later

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Office Quality & Satisfaction Services



.net Agenda

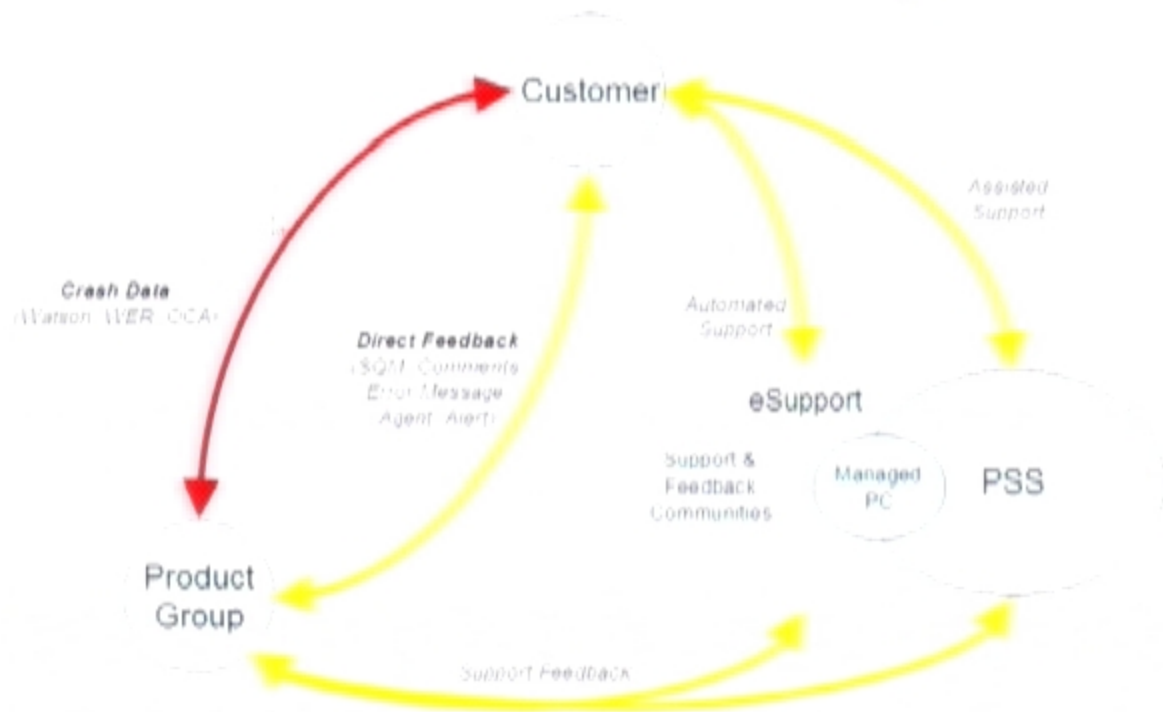
- What is Watson
- What we can do with it
- How we get and analyze data
- Questions

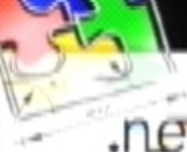


.net Our Mission

- Building an ever more sensitive nervous system to detect customer pain
- Delivering the pain to the right part of the organization to take effective action
- Closing the loop with customers
- Quality perception influenced by 3rd party components

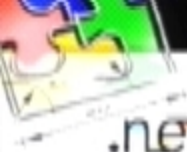
Product Feedback Ecosystem





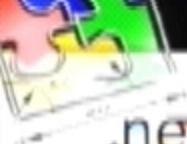
.net Crashes hurt!

- BillG memo on 'Trusted Computing'
- Industry considers PC inherently unstable
 - Walt Mossberg 9/30/99. "Dear Diary: I'm tired of the way Windows crashes and freezes"
- Our data concurs
 - MS Satisfaction survey – crashes are the #1 complaint (3 years running)
 - 'Fatal Events' continue as top PSS issues



.net Crashes hurt!

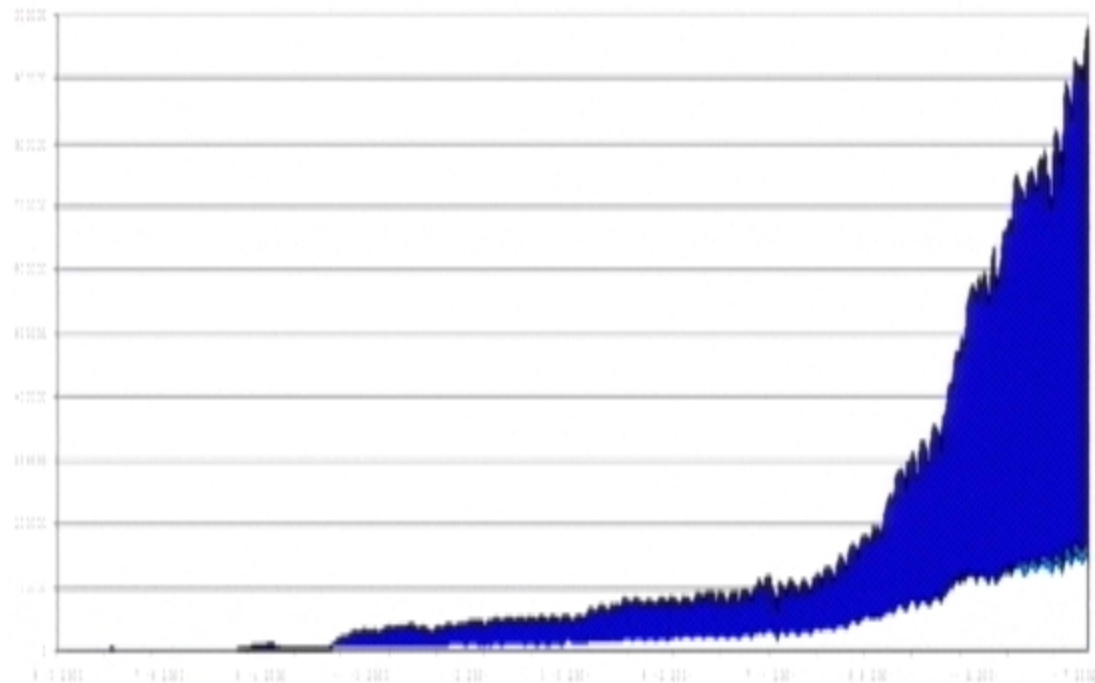
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.net Watson today

- Crashes (1,000,000 reported per day; 95MM lfe to date)
 - Windows XP for ALL unhandled exceptions
 - ISV data sharing program underway
 - Shooting to fix 33% of all reported crashes in SP-1
 - Office XP—Fixed ~38% of all Office crashes in SP-1
 - MSN Explorer—The 1st Watson client from Beta1 of V1 all the way on
 - VS.net—Fixed 57% of all issues throughout beta cycle, 75% in beta1
 - Numerous consumer games
 - .NET Server apps
 - Many, many more... (everything we ship sometime soon?)
- Bluescreens on Windows XP (70,000 per day)
- Other Errors (simple & bucketed clients)
 - Setup failures (Office, MSN Explorer)
 - Unplanned shutdown events
 - AppCompat wizard
 - SQL & IIS reliability data

Watson Server Traffic – Crashes





.net Client/Server 'Bucketing'

- Our method of sampling
 - For crashes assumes no client access to symbols
- What You Get:
 - Ability to limit data collection (sampling)
 - Custom data collection
 - Per bucket hit counting
 - Per bucket user response
- Group failures by certain 'bucketing' parameters:
 - Application Name
 - Application Version
 - App Linker Timestamp*
 - Module Name
 - Module Version
 - Module Linker Timestamp*
 - Offset into module
 - Debug | Ship*

* New to DW 2.0



.net Crash Curve

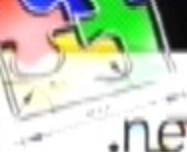


NOTE: FrontPage RTM (10.0.2623.0) top 20% of curve



.net Office XP SP-1

Application	Crashes	Fixed	Fixes	KB Article	Fix or KB	% Solved
Outlook	632,302	313,935	55	60,063	316,633	50.1%
FrontPage	64,681	23,811	39	95	23,906	37.0%
Word	636,116	139,629	52	80,324	219,953	34.6%
Excel	209,221	44,334	30	8,910	53,244	25.4%
PowerPoint	87,130	10,333	20	10,469	20,802	23.9%
Access	79,493	10,607	17	510	11,117	14.0%
Publisher	37,036	4,533	12	91	4,624	12.5%
OFFICE	1,745,979	547,182	160	160,462	650,279	37.2%



.net 'WatsonJobs'

- Using symbolic data
 - Symbol Servers allow Watson's backend process to find symbols and binaries.
 - We launch a debugger for each dump and feed the output into a massive database.
 - The client/server conversation is unaffected. This is done as an asynchronous debugging session.
- We use this information to figure out which buckets are "related"



.net Using Symbolic Data

- A method for separating multiple bugs in a single bucket:
 - Every cab contains the stack of (on average) 20 functions before the crash occurred.
 - We declare certain functions – which we believe to be problem-free or uninteresting to be “Immune”
 - Walk up the stack until we find the first non-immune function.
 - This becomes the szSymbol a.k.a. first interesting function for the cab.
- A bucket can have multiple szSymbols



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.net One Bucket, Two Bugs...

FPEDITAX.DLL:CRulesGatherer::SelectorMatchesTree
FPEDITAX.DLL:CRulesGatherer::MatchRules
FPEDITAX.DLL:CRulesGatherer::GatherRuleDicts
FPEDITAX.DLL:CFHTMLHandler::ProcessNodeForInput
FPEDITAX.DLL:CFHTMLHandler::ProcessPaste
FPEDITAX.DLL:CFHTMLHandler::ProcessCFHTML
FPEDITAX.DLL:CWPERangeCommander::OnDropOrPasteHml
FPEDITAX.DLL:CWPERangeCommander::OnDropOrPaste
FPEDITAX.DLL:CWPEView::OnEditPaste
MFC42.DLL: AfxDispatchCmdMsg
MFC42.DLL:CCmdTarget::OnCmdMsg
MFC42.DLL:CView::OnCmdMsg
FPEDITAX.DLL:CWPEView::OnCmdMsg
FPEDITAX.DLL:CCommonViewBehavior::OnCmdMsgWpe
FPEDITAX.DLL:CWPEChildFrameWnd::OnCmdMsg
MFC42.DLL:CWnd::OnCommand
MFC42.DLL:CFrameWnd::OnCommand
[...]

[2_2_2001_29c187a.cab](#)

FPEDITAX.DLL:WPEV::OutdentRange
FPEDITAX.DLL:CWPERangeCommander::DoFormatOutdent
FPEDITAX.DLL:CWPEView::OnFormatOutdent
FPEDITAX.DLL:CWPEView::DoHandleReturnKey
FPEDITAX.DLL:CWPEView::OnHandleReturnKey
MFC42.DLL: AfxDispatchCmdMsg
MFC42.DLL:CCmdTarget::OnCmdMsg
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MFC42.DLL:CWnd::OnCommand
MFC42.DLL:CFrameWnd::OnCommand
MFC42.DLL:CWnd::OnWndMsg
MFC42.DLL:CWnd::WindowProc
MFC42.DLL:AfxCallWndProc
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[...]

[2_2_2001_29c187a.cab](#)



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[...]

[2_26_2001-20238251_1.asp](#)

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[...]

[2_26_2001-20238251_1.asp](#)



Watson (LIVE) Bucket '614567'

[Home] [Debug Tips] [Configuration]

<input type="checkbox"/> Callstack Tree	<input checked="" type="checkbox"/> Raid Bugs	<input type="checkbox"/> Survey Responses	<input type="checkbox"/> Hits By Day	<input type="checkbox"/> Datawanted Table	<input checked="" type="checkbox"/> Cab Table	<input checked="" type="checkbox"/> Update Bucket Values
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DW.NET Bucket Table

614567	Watson Error	11/11/2002 10:00:00	View	11/11/2002 10:00:00	10074001	1000	1	
http://www.microsoft.com/production/468/.../DW.NET/Bucket.aspx?Bucket=614567&Bucket=614567								
View	11/11/2002 10:00:00	10074001	10074001	10074001	1000	1	10074001	
View	11/11/2002 10:00:00	10074001	10074001	10074001	1000	1	10074001	

[WARNING]

- This bucket has been moved to a new location. The new location is: <http://www.microsoft.com/production/468/.../DW.NET/Bucket.aspx?Bucket=614567>
- This bucket has been moved to a new location. The new location is: <http://www.microsoft.com/production/468/.../DW.NET/Bucket.aspx?Bucket=614567>
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Raid Bugs

10074001	10074001	10074001	10074001	10074001	10074001	10074001	10074001	10074001
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[Raid Bug]

Datawanted Table

10074001

10074001

Cab Table

1	10074001	10074001	10074001	10074001	10074001	10074001	10074001	10074001
2	10074001	10074001	10074001	10074001	10074001	10074001	10074001	10074001
3	10074001	10074001	10074001	10074001	10074001	10074001	10074001	10074001
4	10074001	10074001	10074001	10074001	10074001	10074001	10074001	10074001
5	10074001	10074001	10074001	10074001	10074001	10074001	10074001	10074001
6	10074001	10074001	10074001	10074001	10074001	10074001	10074001	10074001
7	10074001	10074001	10074001	10074001	10074001	10074001	10074001	10074001
8	10074001	10074001	10074001	10074001	10074001	10074001	10074001	10074001

15	01_12_2010 807788821_180	01_12_2010 8 24 49 PM	81901	-8	winlogon + R PM 01_12_2010	01000000	819000 - 0.00.00
16	01_12_2010 80888921_180	01_12_2010 10:16 11 AM	81901	-8	winlogon + R PM 01_12_2010	01000000	819000 - 0.00.00
17	01_12_2010 80888921_180	01_12_2010 10:16 11 AM	81901	-8	winlogon + R PM 01_12_2010	01000000	819000 - 0.00.00
18	01_12_2010 80888921_180	01_12_2010 10:16 11 AM	81901	-8	winlogon + R PM 01_12_2010	01000000	819000 - 0.00.00
19	01_12_2010 80888921_180	01_12_2010 10:16 11 AM	81901	-8	winlogon + R PM 01_12_2010	01000000	819000 - 0.00.00
20	01_12_2010 80888921_180	01_12_2010 10:16 11 AM	81901	-8	winlogon + R PM 01_12_2010	01000000	819000 - 0.00.00
21	01_12_2010 80888921_180	01_12_2010 10:16 11 AM	81901	-8	winlogon + R PM 01_12_2010	01000000	819000 - 0.00.00
22	01_12_2010 80888921_180	01_12_2010 10:16 11 AM	81901	-8	winlogon + R PM 01_12_2010	01000000	819000 - 0.00.00
23	01_12_2010 80888921_180	01_12_2010 10:16 11 AM	81901	-8	winlogon + R PM 01_12_2010	01000000	819000 - 0.00.00
24	01_12_2010 80888921_180	01_12_2010 10:16 11 AM	81901	-8	winlogon + R PM 01_12_2010	01000000	819000 - 0.00.00
25	01_12_2010 80888921_180	01_12_2010 10:16 11 AM	81901	-8	winlogon + R PM 01_12_2010	01000000	819000 - 0.00.00
26	01_12_2010 80888921_180	01_12_2010 10:16 11 AM	81901	-8	winlogon + R PM 01_12_2010	01000000	819000 - 0.00.00
27	01_12_2010 80888921_180	01_12_2010 10:16 11 AM	81901	-8	winlogon + R PM 01_12_2010	01000000	819000 - 0.00.00

[Download this file from the Internet](#)

Update Bucket Values

Respond to the user

- ☐ No response (default)
- ☐ Ask them to fill out a survey
- ☐ Print them to a KB article
- ☐ Point them to a web page

Gather more data

 Additional cab files to gather: More cab files

☐ Gather minidumps with heap data

Registry keys:

Get files:

Get file version information:

WMI Query language queries:



Search

Favorites

Media

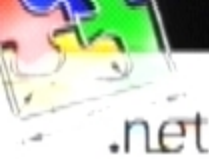
http://www.gametrack.com/Database/Database.html?mode=PBOT&f=1280,f=127,useGame=1,f=1,f=1,useGame=1

10

634867	montg-ele	11112811	124078-0	11112811	11117411	19-1	18	100%	PBOT&f=1280,f=127,useGame=1	Se a montg-trasT
548484	montg-ele	11112811	124078-0	11112811	11117411	17	2	100%	PBOT&f=1280,f=127,useGame=1	Se a montg-trasT
398218	montg-ele	11112811	124078-0	11112811	11117411	12	0	100%	PBOT&f=1280,f=127,useGame=1	Se a montg-trasT

(061408)

1 2
2 3
3 4
4 5
5 6
6 7
7 8
8 9



.net Calltree Visualization

<http://watson/calltree.asp?iBucket=614567>

- (0) FPEDITAX.DLL ! **Sequence::AssureValid** + 0x7 (26 cabs)
- (1) FPEDITAX.DLL ! **HTree::Treeify** + 0x1d
- (2) FPEDITAX.DLL ! **HNode::Parent** + 0xb (18 cabs)
- (3) FPEDITAX.DLL ! **CRulesGatherer::SelectorMatchesTree** + 0x3f
- (4) FPEDITAX.DLL ! **CRulesGatherer::MatchRules** + 0x99
- (5) FPEDITAX.DLL ! **CRulesGatherer::GatherRuleDicts** + 0x8e
- (6) FPEDITAX.DLL ! **CFHTMLHandler::ProcessNodeForInput** + 0xbe
- (2) FPEDITAX.DLL ! **HNode::ParentStruct** + 0xc (8 cabs)
- (3) FPEDITAX.DLL ! **WPEV_OutdentRange** + 0x2c0
- (4) FPEDITAX.DLL ! **CWPERangeCommander::DoFormatOutdent** + 0x87
- (5) FPEDITAX.DLL ! **CWPEView::OnFormatOutdent** + 0x18
- (6) FPEDITAX.DLL ! **CWPEView::DoHandleReturnKey** + 0x324 (6 cabs)
- (6) MFC42.DLL ! **_AfxDispatchCmdMsg** + 0x7d (1 cab)
- (6) MFC42.DLL ! **_AfxDispatchCmdMsg** + 0x7e (1 cab)

[http://www.microsoft.com/InternetExplorer/Default.aspx](#)
[http://www.microsoft.com/InternetExplorer/Default.aspx](#)
[http://www.microsoft.com/InternetExplorer/Default.aspx](#)
[http://www.microsoft.com/InternetExplorer/Default.aspx](#)

Callstack Tree

[http://www.microsoft.com/InternetExplorer/Default.aspx](#)

- + (0) PRDITA\DLL Sequence: AsseureValid + 0x70000000
- (1) PRDITA\DLL HFrameTreeify + 0x00000000
- (2) PRDITA\DLL HNodeParent + 0x00000000
- (3) PRDITA\DLL CRulesGatherer::SelectorMatchingTree + 0x00000000
- (4) PRDITA\DLL CRulesGatherer::MatchRules + 0x00000000
- (5) PRDITA\DLL CRulesGatherer::gatherRuleInfo + 0x00000000
- (6) PRDITA\DLL CHTMLHandler::ProcessDocument + 0x00000000
- (7) PRDITA\DLL CHTMLHandler::ProcessPaste + 0x00000000
- (7) PRDITA\DLL CHTMLHandler::ProcessPasteKeep + 0x00000000
- (2) PRDITA\DLL HNodeParent::Track + 0x00000000

Raid Bugs

[http://www.microsoft.com/InternetExplorer/Default.aspx](#)
[http://www.microsoft.com/InternetExplorer/Default.aspx](#)
[http://www.microsoft.com/InternetExplorer/Default.aspx](#)
[http://www.microsoft.com/InternetExplorer/Default.aspx](#)
[http://www.microsoft.com/InternetExplorer/Default.aspx](#)

Cab Table

1	2/1/2001 16:48:47.000	1/1/2001 8:28:27.000	81648	168847	http://www.microsoft.com/InternetExplorer/Default.aspx	11/11/2001 10:00:00 - 10:00:00
2	2/1/2001 16:48:47.000	1/1/2001 8:28:27.000	81649	168848	http://www.microsoft.com/InternetExplorer/Default.aspx	11/11/2001 10:00:00 - 10:00:00
3	2/1/2001 16:48:47.000	1/1/2001 8:28:27.000	81650	168849	http://www.microsoft.com/InternetExplorer/Default.aspx	11/11/2001 10:00:00 - 10:00:00
4	2/1/2001 16:48:47.000	1/1/2001 8:28:27.000	81651	168850	http://www.microsoft.com/InternetExplorer/Default.aspx	11/11/2001 10:00:00 - 10:00:00
5	2/1/2001 16:48:47.000	1/1/2001 8:28:27.000	81652	168851	http://www.microsoft.com/InternetExplorer/Default.aspx	11/11/2001 10:00:00 - 10:00:00
6	2/1/2001 16:48:47.000	1/1/2001 8:28:27.000	81653	168852	http://www.microsoft.com/InternetExplorer/Default.aspx	11/11/2001 10:00:00 - 10:00:00
7	2/1/2001 16:48:47.000	1/1/2001 8:28:27.000	81654	168853	http://www.microsoft.com/InternetExplorer/Default.aspx	11/11/2001 10:00:00 - 10:00:00
8	2/1/2001 16:48:47.000	1/1/2001 8:28:27.000	81655	168854	http://www.microsoft.com/InternetExplorer/Default.aspx	11/11/2001 10:00:00 - 10:00:00
9	2/1/2001 16:48:47.000	1/1/2001 8:28:27.000	81656	168855	http://www.microsoft.com/InternetExplorer/Default.aspx	11/11/2001 10:00:00 - 10:00:00

Time	Source	Destination	Size	Time	Source	Destination	Size	Time	Source	Destination	Size
17	10.10.10.10	10.10.10.10	1024	10.10.10.10	10.10.10.10	1024	10.10.10.10	10.10.10.10	1024	10.10.10.10	1024
18	10.10.10.10	10.10.10.10	1024	10.10.10.10	10.10.10.10	1024	10.10.10.10	10.10.10.10	1024	10.10.10.10	1024
19	10.10.10.10	10.10.10.10	1024	10.10.10.10	10.10.10.10	1024	10.10.10.10	10.10.10.10	1024	10.10.10.10	1024
20	10.10.10.10	10.10.10.10	1024	10.10.10.10	10.10.10.10	1024	10.10.10.10	10.10.10.10	1024	10.10.10.10	1024
21	10.10.10.10	10.10.10.10	1024	10.10.10.10	10.10.10.10	1024	10.10.10.10	10.10.10.10	1024	10.10.10.10	1024
22	10.10.10.10	10.10.10.10	1024	10.10.10.10	10.10.10.10	1024	10.10.10.10	10.10.10.10	1024	10.10.10.10	1024
23	10.10.10.10	10.10.10.10	1024	10.10.10.10	10.10.10.10	1024	10.10.10.10	10.10.10.10	1024	10.10.10.10	1024
24	10.10.10.10	10.10.10.10	1024	10.10.10.10	10.10.10.10	1024	10.10.10.10	10.10.10.10	1024	10.10.10.10	1024
25	10.10.10.10	10.10.10.10	1024	10.10.10.10	10.10.10.10	1024	10.10.10.10	10.10.10.10	1024	10.10.10.10	1024
26	10.10.10.10	10.10.10.10	1024	10.10.10.10	10.10.10.10	1024	10.10.10.10	10.10.10.10	1024	10.10.10.10	1024
27	10.10.10.10	10.10.10.10	1024	10.10.10.10	10.10.10.10	1024	10.10.10.10	10.10.10.10	1024	10.10.10.10	1024

Source: [Source] Destination: [Destination] Size: [Size]

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☐ Gather dumps with heap data

Registry Keys:

Get files:

Get file version information:

WMI Query Language queries:

Update

Help

http://www.microsoft.com/.../.../.../.../...				http://www.microsoft.com/.../.../.../.../...			
17	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM
18	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM
19	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM
20	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM
21	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM
22	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM
23	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM
24	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM
25	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM
26	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM
27	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM

www.microsoft.com/.../.../.../...

Update Bucket Values

Respond to the user

No response (default)

Ask them to fill out a survey **Windows XP** Choose a brand for your survey

Point them to a KB article

Point them to a web page

Gather more data

Additional cab files to gather: More cab files

Gather minidumps with heap data

Registry keys:

Get files:

Get file version information:

WMI Query Language queries:

Update

Help



Calltree Visualization

<http://watson/calltree.asp?iBucket=614567>

- (0) FPEDITAX.DLL ! **Sequence::AssureValid** + 0x7 (26 cabs)
 - (1) FPEDITAX.DLL ! **HTree::Treeify** + 0x1d
 - (2) FPEDITAX.DLL ! **HNode::Parent** + 0xb (18 cabs)
 - (3) FPEDITAX.DLL ! **CRulesGatherer::SelectorMatchesTree** + 0x3f
 - (4) FPEDITAX.DLL ! **CRulesGatherer::MatchRules** + 0x99
 - (5) FPEDITAX.DLL ! **CRulesGatherer::GatherRuleDicts** + 0x8e
 - (6) FPEDITAX.DLL ! **CFHTMLHandler::ProcessNodeForInput** + 0xbe
 - (2) FPEDITAX.DLL ! **HNode::ParentStruct** + 0xc (8 cabs)
 - (3) FPEDITAX.DLL ! **WPEV_OutdentRange** + 0x2c0
 - (4) FPEDITAX.DLL ! **CWPERangeCommander::DoFormatOutdent** + 0x87
 - (5) FPEDITAX.DLL ! **CWPEView::OnFormatOutdent** + 0x18
 - (6) FPEDITAX.DLL ! **CWPEView::DoHandleReturnKey** + 0x324 (6 cabs)
 - (6) MFC42.DLL ! **_AfxDispatchCmdMsg** + 0x7d (1 cab)
 - (6) MFC42.DLL ! **_AfxDispatchCmdMsg** + 0x7e (1 cab)

http://www.microsoft.com/.../.../...				http://www.microsoft.com/.../.../...			
17	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM
18	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM
19	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM
20	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM
21	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM
22	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM
23	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM
24	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM
25	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM
26	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM
27	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM	11/17/2001 10:00:00 AM

[http://www.microsoft.com/.../.../...](#)

Update Bucket Values

Respond to the user

No response (default)

Ask them to fill out a survey

Choose a brand for your survey

Point them to a KB article

Point them to a web page

Gather more data

Additional cab files to gather: More cab files

Gather dump with heap data

Registry keys:

Get files:

Get file version information:

WMI Query Language queries:

Microsoft apologizes for the inconvenience caused by the error you just experienced. Please fill out and submit the following survey. The information you provide will help us find and fix this problem.

What task were you doing just before the error occurred?

Please provide a description. If you have steps that can be used to reproduce the problem, please provide those steps.

Example: "Error occurred when I tried to paste an AutoShape from Excel into Outlook Calendar. 1) Start Excel 2) Insert AutoShape 3) Edit Copy 4) Start Outlook Calendar 5) Edit Paste"

If Microsoft needs more information about this problem, may we contact you personally?

If we may contact you, please provide an email address or telephone number. Otherwise, simply leave the fields blank.

2009年12月 第11期

Contact Dr. on:

428-333-3333

Operating System

[illegible]

Windows

Microsoft

- Thank you for taking the time to file a problem report.
- This report is not a formal product support incident.
- Please visit [this site](#) for more information on product support.

Microsoft Corporation
Microsoft Corporation
Microsoft Corporation



(data)

1
2
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10

File Edit View Favorites Tools Help

Search Favorites Media

http://www.ibm.com/ibm/surveys/30066.jsp

Watson Survey Detail

Survey ID: 30066 (Bucket 614567)

Filled: 1/27/2002 12:14:27 PM

Email: eric@ibm.com

Phone: Not provided

LCID: [0]

Survey Brand: watson

Description:
test

Address:
USA

Environment:
US10010000

Frequency: 1/27/2002 12:14:27 PM

(data:)

1 2
2 2
3 2
4 2
5 2

1 2
2 2
3 2
4 2
5 2

start 10 Internet Explorer Microsoft PowerPoint PowerPoint Slide Show SQL Query Analyzer 6/21/98

Update Bucket Values

Respond to the user

- No response (default)
- Ask them to fill out a survey
- Point them to a KB article
- Point them to a web page

[Gather more data](#)

Additional cab files to gather: [More Cab Files](#)

^① 白蘭地的確係由葡萄汁釀成，不過它的確係由白蘭地酒廠所釀成。

Registry Keys:

Cast films:

Get file version information:

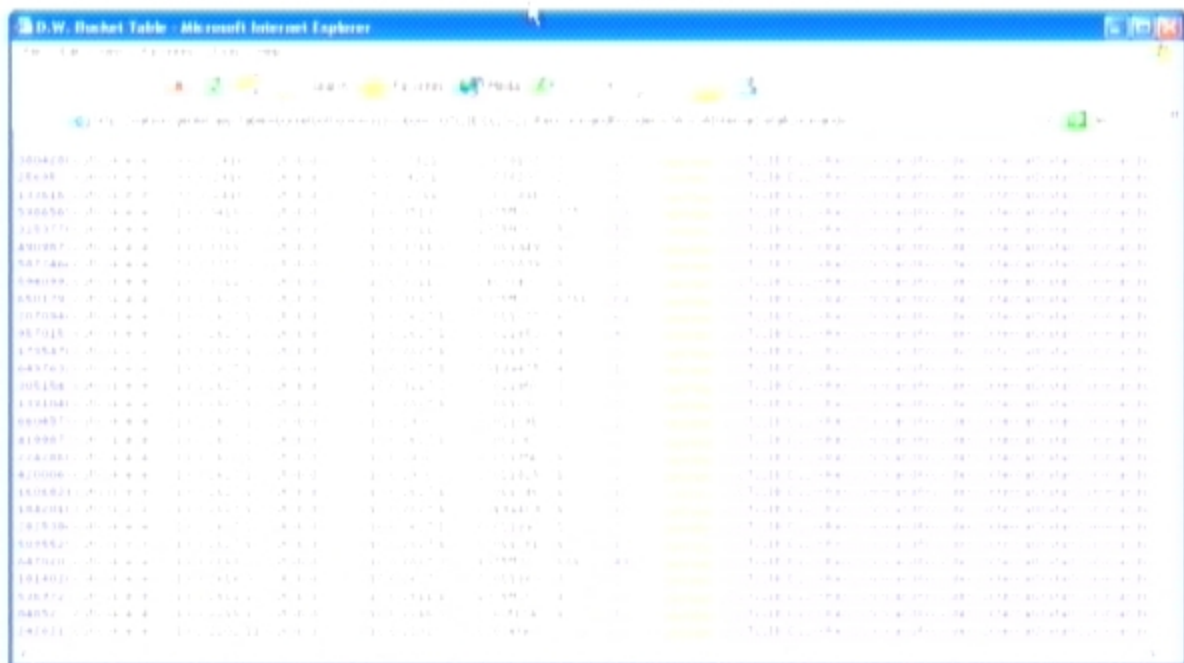
WMI Query Language queries

update

Heliol



.net Same Bug, Many Buckets





.net DW 2.0: 'Generic Errors'

- The sky's the limit for data that:
 - Can be categorized around cause and then 'bucketed'
- Examples:
 - Error/Warning Alerts
 - 'Ship Asserts'
 - CD Burn errors
 - I/O Failures
 - Server Connectivity
 - Plug & Play device errors



Watson (Internal) BucketGeneric '56'

[\[Home\]](#) [\[Debug Tips\]](#) [\[Configuration\]](#)
[Callstack Tree](#) [Read Bugs](#) [Survey Responses](#) [Hits By Day](#) [Delayed Table](#) [Cab Table](#) [Update Bucket Values](#)

DW.NET BucketGeneric Table

[Link to Bug](#)

Cab Table

Update BucketGeneric Values

Respond to the user

- ☐ No response (default)
- ☐ Ask them to fill out a survey
- ☐ Point them to a KB article
- ☐ Point them to a web page

Gather more data

Additional cab files to gather:

☐ Gather minidumps with heap data

☐ Gather active documents

Registry keys:

Registry trees:

Get files:

Get file version information:

[illegible]



.net DW 2.0: 'Generic Errors'

- The sky's the limit for data that:
 - Can be categorized around cause and then 'bucketed'
- Examples:
 - Error/Warning Alerts
 - 'Ship Asserts'
 - CD Burn errors
 - I/O Failures
 - Server Connectivity
 - Plug & Play device errors



.net User Response

- Users can be directed to any Microsoft URL by clicking on the 'More information' hyperlink on Watson's Thank You dialog.
- DW 2.0 can just autolaunch the web page...

Error Reporting



Thank you for taking the time to report this problem. We apologize for the inconvenience this error has caused you.

Further information about this error may be found by following the link below.

[More information](#)

Close



.net Content of Responses

- We can push back:
 - Patches – To fix specific problems.
 - Updates/SP's – Direct users with out-of-date EXE's or DLL's to an update site
 - Workarounds – Knowledgebase Articles.

- Surveys - if we need more information. These pages ask for repro steps associated with a bucket.
- Even a plea to 'please call us collect...'
- Other advanced data collection mechanisms like BugTrapper?



.net A Few of the Lessons

- Many operational lessons
 - Scale assumptions working very well—but the service growth is mind blowing!
 - SQL, SQL, and more SQL
- Cultural lessons
 - Many groups get excellent initial ROI
 - The data is far from easy to use—but it's very useful
 - We can still do better at developer engagement
 - Tools, automation, dev process
 - Not yet wired into PSS
 - Need deeper instrumentation for state



.net More Information

- Email <mailto:dwcore>
- Join <mailto:dwfriend>
- Visit our site: <http://watson>

WATSON

Pages

LEVE HIT



Critical Links

- Data Collection Epic
- Download Watson
- Client Integration
- FAQ

More Information

- General
- Find & Bugs
- For Integrators
- Future Plans

DW/Client Info

- DWCore (aka: questions)
- DWPrand (for for DW)
- DWStat (aka:)
- DWProc (aka:)
- DWGen (aka:)
- The Watson Team



Raw Crash Table	1/2/2004	100%	100%	100%	100%
Grouped Crash Table	1/2/2004	100%	100%	100%	100%
Grouped Crash Table	1/2/2004	100%	100%	100%	100%
Raw Reports	1/2/2004	100%	100%	100%	100%
Setup Features	1/2/2004	100%	100%	100%	100%
Asset Page	1/2/2004	100%	100%	100%	100%
Help/Manual	1/2/2004	100%	100%	100%	100%
Build a Query	1/2/2004	100%	100%	100%	100%

Enter a BUCKET	1/2/2004	100%	100%	100%	100%
Enter a BUCKET	1/2/2004	100%	100%	100%	100%
Enter a WPTOP FAULT	1/2/2004	100%	100%	100%	100%
Enter an ASSET	1/2/2004	100%	100%	100%	100%

Enter ANY of the following to see matching BUCKETs:

Application Name (1/2/2004)

Application Version (1/2/2004)

Module Name (1/2/2004)

Module Version (1/2/2004)

Office Watson

.net

Overview

Office Watson is a free tool that helps you find and fix Office crashes. It also provides a database of known Office crashes and fixes.

Last 30 days (7/2/2001)

Crashes

[View all Office Watson issues.](#)

CR: 34754 3711

4773

[View all Office Watson issues.](#)

Application	RTM Version	Total number of reported crashes (no hangs)	Percent of Office crashes	Number of crashes fixed	Number of crashes KB'd	Number of crashes fixed OR KB'd	Percent of crashes with fixes or KB's
Outlook	10.0.3438.0	24640	37.3%	294	203	497	1.9%
Word	10.0.3438.0	22676	34.3%	3665	4238	4670	21.5%
Excel	10.0.3808.0	7299	11.0%	2664	2742	2742	37.6%
PowerPoint	10.0.2905.0	4780	7.2%	2459	2419	2947	61.6%
Access	10.0.3409.0	4083	6.2%	0	85	85	2.1%
FrontPage	10.0.3402.0	1498	2.2%	0	0	0	0.4%
Publisher	10.0.3402.0	1164	1.8%	49	73	73	6.3%
Total Office		66110		9121	9766	10798	16.3%

Office Watson is a free tool that helps you find and fix Office crashes. It also provides a database of known Office crashes and fixes.

[Office Watson Home](#) - Home page for Office Watson.

[FAQ: Query for known Watson issues.](#)

[Common Questions](#) - Common questions and answers about Office Watson.

[Web Contacts](#) - Web contacts for Office Watson.

EstherE

Last modified: 27-11-2000

Last modified: 27-11-2000

Last modified: 27-11-2000

Last modified: 27-11-2000

Application	RTM Version	Total number of reported crashes (no hangs)	Percent of Office crashes	Number of crashes fixed	Number of crashes KB'd	Number of crashes fixed OR KB'd	Percent of crashes with fixes or KB's
Outlook	10.0.3410.0	24840	37.2%	204	202	406	1.6%
Word	10.0.3416.0	22678	34.3%	3683	4238	4878	21.5%
Excel	10.0.3306.0	7200	11.0%	2664	2742	2742	37.6%
PowerPoint	10.0.3505.0	4780	7.1%	2459	2419	2847	59.6%
Access	10.0.3409.0	4063	6.2%	0	85	85	2.1%
FrontPage	10.0.3402.0	1498	2.3%	0	0	0	0.4%
Publisher	10.0.3402.0	1164	1.8%	49	73	73	6.3%
Total Office		66110		9121	9766	10798	16.3%

Office Watson Home

[Office Watson Home](#)

[FAQ: user's for common Watson issues.](#)

[Common Questions](#)

[API Contacts](#)

EstherE

EstherE